

REMARKS

Applicant respectfully requests reconsideration of this application. Claims 1-21 are pending. Claims 3, 10 and 15 have been amended. No claims have been cancelled or added. Therefore, claims 1-21 are now presented for examination.

Objection to Specification

The Examiner continues to object to the lack of a summary in the application. The Examiner has indicated that “[i]n response, 37 CFR § 1.73 also does not state that Examiner should not object a specification when the brief summary is not preset (i.e. if not applicable). Therefore, the objection to the specification is maintained.”

Applicant hereby respectfully submits that the Office Action is not in conformity with law. It is without question that the Examiner’s authority is limited by the law contained in the statutes and the code of regulations. If the law does not require a summary, then the Examiner lacks the authority to raise an objection for the lack of a summary. The Examiner cannot lawfully raise an objection on the grounds that the CFR doesn’t *prohibit* this action, as the Examiner has apparently done here. The Examiner is only authorized to apply the law, and is not authorized to create new application requirements beyond those provided in law.

Regardless of the other issues to be addressed in this matter, it is respectfully submitted that this objection is without merit and thus must be withdrawn.

Claim Rejections under 35 U.S.C. §102

Cheng, et al.

Archambault, et al.

The Examiner rejects claims 1-21 under 35 U.S.C. 102 (e) as being anticipated by U.S Patent Publication No. 2002/0010911 of Cheng, et al. ("Cheng").

The Examiner further rejects claims 1-21 under 35 U.S.C. 102 (e) as being anticipated by U.S Patent No. 6,173,444 of Archambault ("Archambault").

Claim 1 provides as follows:

- 1). A method, comprising:
 - analyzing each routine, of a software program having a plurality of separately compilable routines, to create a plurality of local side-effect lattice problems for each routine; and
 - merging the local side-effect lattice problems to create a global side-effect problem.

A claim is not anticipated by a reference unless each and every claim limitation is contained in the reference. It is not enough for the references to have similarities – the elements of the claims must be contained in the reference in order for rejection of the claim to be justified.

In discussing the last response, the Office Action states "the Applicant fails to discuss the references applied against the claims, specifically explaining how the claims avoid the references or distinguish from them and to point out disagreements the examiner's contentions." In response, Applicant hereby again states that the cited references do not contain the elements of the claims. Specifically, claim 1 provides for creating a plurality of local side-effect lattice problems for each routine of a software

program. The claim further provides for merging the local side-effect lattice problems to create a global side-effect lattice problem. These elements are not contained in the cited references. The references do not address the creation of local side-effect problems or the combination of such problems into a global side-effect problem.

In the first cited reference, Cheng is an attempt to address memory access latency issues. The way these issues are addressed is to present an algorithm to create intraprocedural behavior functions and then use the summarized behavior in resolving pointers when interprocedural analysis process is conducted. (See Cheng, ¶0022) For example, Cheng describes a preferred embodiment as:

In its preferred embodiment, the algorithm of the present invention has two major stages: an intraprocedural stage and an interprocedural stage. In the intraprocedural stage, each function is analyzed as an isolated compilation module where formal parameters, callee return values, and global variables are all assumed to have unknown values. Indirectly accessed locations through unknown pointers are represented by access paths. By the end of the intraprocedural stage, a summary behavior of each function is calculated, including a set of memory locations accessible across function boundaries, a set of call-site names, a set of pointer definitions involving pointers accessible across function boundaries, a set of pointer assignments involving formal parameters and global variables.

(Cheng, ¶0025) In this regard, Cheng does discuss intraprocedural pointer analysis in dealing with the flow of pointer values. However, in Cheng what is described is the use of this analysis to create a behavior summary that can be used in interprocedural analysis. In Cheng, the intraprocedural analysis addresses how to handle pointer assignments and determine aliases among pointers. (Cheng, ¶ 0030) However, what is not discussed is

identifying local side effects problems and merging the problems into a global side effects problem. As indicated in the Office Action, Cheng does indicate that “[t]he trimmed summary behavior will be merged into each function to guide code optimizations” (Cheng, ¶ 0106), but this is a discussion of the merger of summarized behavior for the purpose of guiding optimization, and not a merger of local side effects problems to create a global side-effect problem.

The other cited reference also fails to provide the elements of the claims. Archambault discusses a process to optimize compilation of pointer variables in the presence of indirect function calls. In this discussion, Archambault addresses a method for gathering intraprocedural information about pointer values referenced in each function and saving such information in a pointer alias graph. The alias graphs from all of the compilation units for the program are then combined to form a universal pointer alias graph, which is then reduced by transitive closure. (See, e.g., Archambault, col. 3, lines 22-31) As a result, files can be recompiled using the created universal pointer analysis graph as input. While such a process may be useful, this reference suffers from the same deficiency as Cheng. The reference does not contain the elements of the claims. Archambault is not concerned with creating a plurality of local side-effect lattice problems for each routine and merging the local side-effect lattice problems to create a global side-effect problem. What Archambault is merging is alias sets, which is a different issue.

As is stated in the application, interprocedural analysis is a known technique. This involves a global collection of data. Then, when an optimizer optimizes a unit, the optimizer accesses the global information and performs additional and more aggressive

optimization pertaining to global variables. Archambault acts in this manner, but works to provide an improved and reduced universal data set that can be used in recompilation. Cheng also addresses improving compilation, but by summarizing the intraprocedural behavior of functions, and then using this summarized behavior for processing in the interprocedural phase, thereby achieving a size reduction for operation.

Therefore, neither Cheng nor Archambault contains the elements of claim 1, and thus the rejections should be withdrawn.

It is submitted that the arguments provided above also apply to independent claims 8 and 15, and these claims thus are also allowable. The remaining claims are dependent claims, and are thus allowable as being dependent on the allowable base claims.

Amendments to the Claims

The only amendments to the claims are corrections in punctuation and wording in claims 3, 10, and 15. These changes are minor and do not change the meaning of such claims.

Conclusion

Applicant respectfully submits that the rejections have been overcome by the amendment and remark, and that the claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the claims as amended be allowed.

Invitation for a Telephone Interview

The Examiner is requested to call the undersigned at (503) 439-8778 if there remains any issue with allowance of the case.

Request for an Extension of Time

The Applicant respectfully petitions for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary fee under 37 C.F.R. § 1.17 for such an extension.

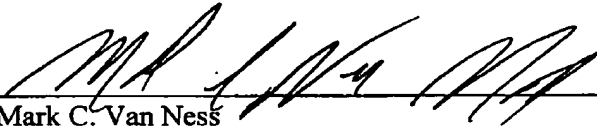
Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Date: 4/13/05



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